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SOME TROUBLES WITH ALGAE IN THE SKANEATELES WATER SUPPLY OF SYRACUSE¹

Syracuse, N. Y., obtained an average supply of 24,741,000 gallons a day from Skaneateles Lake in 1918. This lake is about 14 miles long and 1 mile wide, with a water surface of about 15 square miles. The tributary watershed is approximately 60 square miles and has a permanent population of about 3000, which is increased to about 4250 in summer. There is no large tributary to the lake and the greater part of the watershed has been cleared and devoted to agriculture.

The examination of the watershed made in October, 1919, by E. S. Chase, assistant engineer of the State Department of Health, showed that the sanitary conditions were satisfactory, in general, for a populated area. The rules and regulations for the sanitary protection of the watershed and the lake, prescribed by the Department in 1907, were found to be rigorously enforced. The watershed is patrolled daily, and the entire area is covered about once a fortnight. There are about 270 summer cottages along the shore of the lake. These have privies provided with removable containers, the contents of which are removed at regular intervals by city employees and buried on city land about half a mile from the head of the lake. The sewage of the village of Skaneateles, at the foot of the lake, is treated in a septic tank and the effluent from this tank can by no means reach the lake.

The Syracuse water department has installed a chlorinator at the gate house, to which the water is brought through a 64-inch intake pipe from an intake crib in 40 feet of water. The chlorination

¹ On page 149 of this number of the JOURNAL there is a note by Mr. Brush on the treatment of the Catskill water supply of New York City by copper sulphate. The very large amount of water to be freed from algae makes it necessary to conduct the treatment with more attention to detail than has usually been given to such work. Similar treatment was recommended in November, 1919, by Theodore Horton, chief engineer of the State Department of Health of New York, for the Skaneateles supply of Syracuse, and these notes on the subject have been prepared by the editor from Mr. Horton's official report.

apparatus is operated only at intervals and then solely to see that it is ready for use in case of emergency. In view of the use of the lake for boating and the comparatively large number of persons along its shore during the summer, Mr. Horton believes that there is a sufficient danger of the contamination of the water to warrant the continuous operation of the apparatus.

Some trouble has been experienced with tastes and odors due to algae growths during the early summer. Whether these organisms develop exclusively in the lake water and are transferred to the reservoir in the city, not developing in the latter, or whether temperature and other conditions are responsible for growths within the reservoir itself, Mr. Horton could not decide with his present knowledge. If the algae growths are due fundamentally to growths in the lake water it was recommended that an attempt be made to apply copper sulphate to the supply. In conjunction with this the aeration of the supply as it enters the city reservoir was also recommended for study.

Owing to the fact that the reservoir contains only some five days' supply and that the ordinary method of applying copper sulphate is at best somewhat crude with reference to proper distribution, Mr. Horton suggested that desirable uniformity of distribution might be accomplished by the application of the copper sulphate at the screen chamber at Skaneateles lake. This would give an opportunity for uniform distribution and for a long contact period and, possibly, for partial sterilization by the bactericidal action of copper sulphate.